10/796,657

Serial No.: ~~10/967,657~~

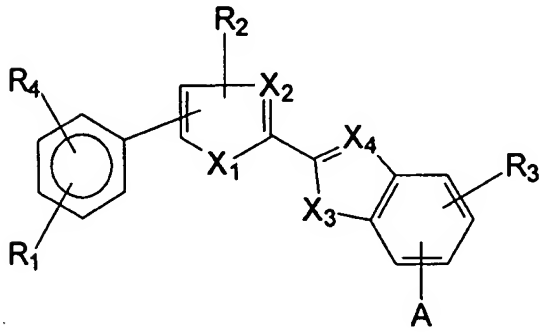
AMENDMENTS

Kindly amend the subject application as follows:

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A compound according to Formula I:



(I)

wherein:

X_1 is O;

X_2 is CH;

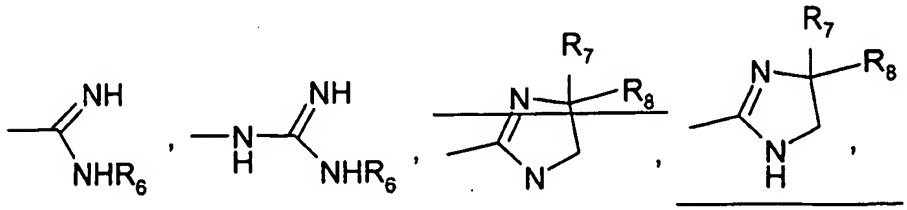
X_3 is NR_9, wherein R_9 is H or alkyl;

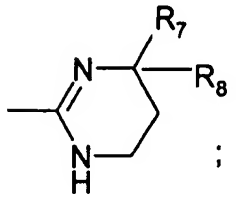
X_4 is N;

~~X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;~~

~~X_2 and X_4 are each independently CH or N;~~

A is ~~selected from the group consisting of H, alkyl, aryl,~~



and  ;

R_1, R_2, R_3, and R_4 ~~and R_5~~ are each independently selected from the group consisting of H, alkyl, alkoxy, halide, alkylhalide, ~~amidine,~~ nitro and amino groups;

R_6 is H, alkyl or aryl; and

R_7 and R_8 are each independently selected from the group consisting of H and alkyl.

2. (Currently Amended) The compound according to Claim 1, wherein:

~~X_1 is O;~~

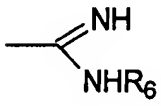
~~X_2 is C;~~

X_3 is NH

~~X_4 is N~~ and

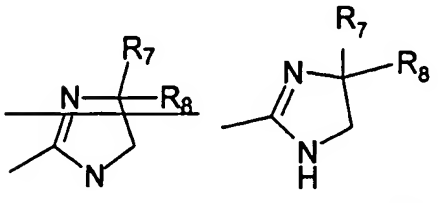
R_2, R_3 and R_4 are each H.

3. (Withdrawn) The compound according to Claim 1, wherein A is



and R_6 is alkyl.

4. (Currently Amended) The compound according to Claim 1, wherein A is

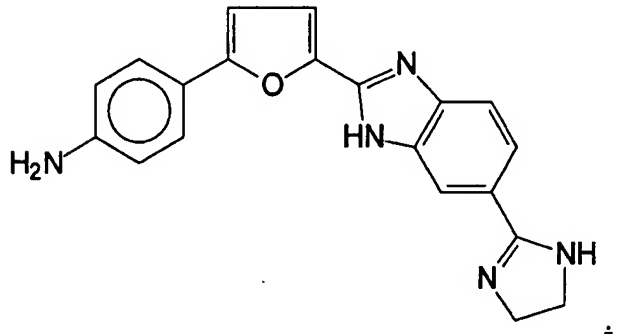


and R_7 and R_8 are each H.

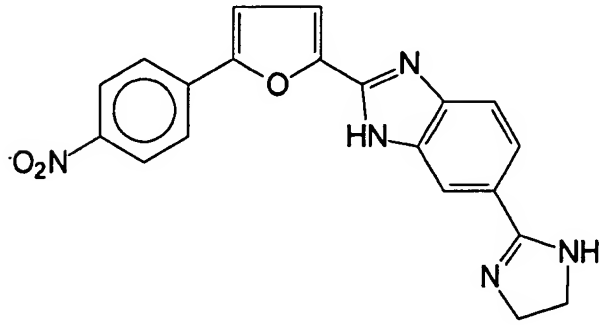
5. (Original) The compound according to Claim 1, wherein R_1 is an amino group.

6. (Original) The compound according to Claim 1, wherein R_1 is a nitro group.

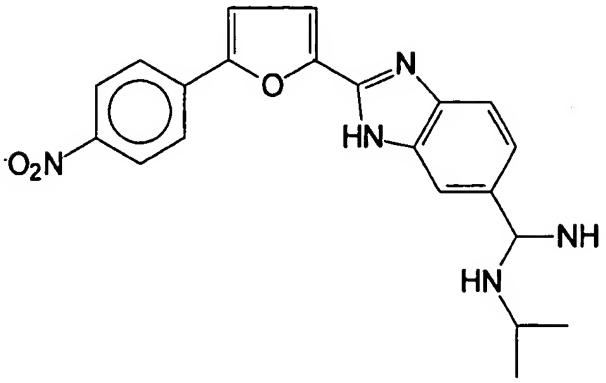
7. (Currently Amended) The compound according to Claim 1, wherein the compound is represented by the formula:



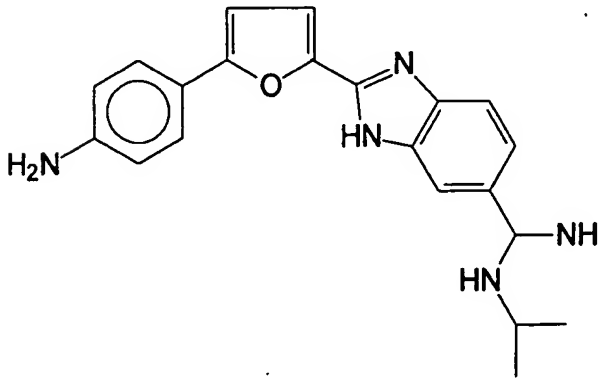
8. (Withdrawn) The compound according to Claim 1, wherein the compound is represented by the formula:



9. (Withdrawn) The compound according to Claim 1, wherein the compound is represented by the formula:



10. (Withdrawn) The compound according to Claim 1, wherein the compound is represented by the formula:

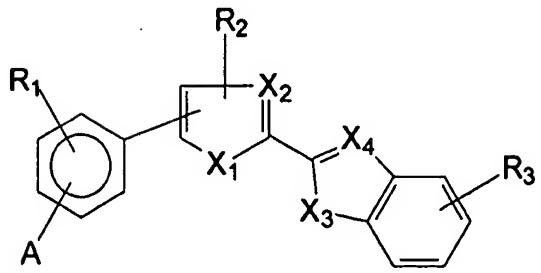


11. (Original) A pharmaceutical composition comprising a compound of Claim 1, in a pharmaceutically acceptable carrier.

12. (Original) The pharmaceutical composition according to Claim 11, wherein the composition is formulated for intravenous administration.

13. (Original) The pharmaceutical composition according to Claim 11, wherein the composition is formulated for oral administration.

14. (Currently Amended) A compound according to Formula II:



(II)

wherein:

X_1 is O;

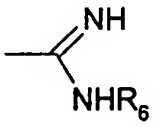
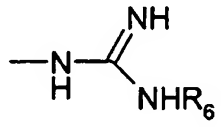
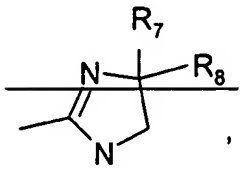
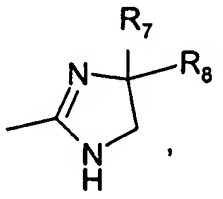
X_2 is CH;

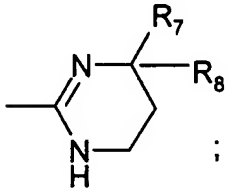
X_3 is NR_9, wherein R_9 is H or alkyl;

X_4 is N;

~~X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;~~

~~X_2 and X_4 are each independently CH or N;~~

A is ~~selected from the group consisting of H, alkyl, aryl,~~  ,  ,  ,  ,

and  ;

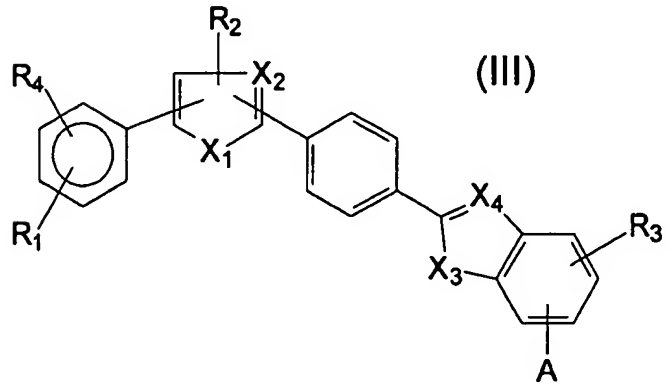
R_1, R_2, and R_3, ~~R_4 and R_5~~ are each independently selected from the group consisting of H, alkyl, alkoxy, halide, alkylhalide, ~~amidine,~~ nitro and amino groups;
R_6 is H, alkyl or aryl; and
R_7 and R_8 are each independently selected from the group consisting of H and alkyl.

15. (Original) A pharmaceutical composition comprising a compound of Claim 14, in a pharmaceutically acceptable carrier.

16. (Original) The pharmaceutical composition according to Claim 15, wherein the composition is formulated for intravenous administration.

17. (Original) The pharmaceutical composition according to Claim 15, wherein the composition is formulated for oral administration.

18. (Currently Amended) A compound according to Formula III:



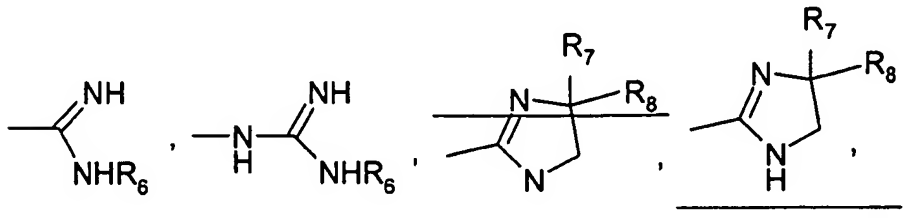
(III)

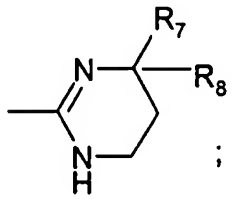
wherein:
X_1 is O;
X_2 is CH;
X_3 is NR_9, wherein R_9 is H or alkyl;
X_4 is N;

~~X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;~~

~~X_2 and X_4 are each independently CH or N;~~

A is ~~selected from the group consisting of H, alkyl, aryl,~~



and  ;

R_1, R_2, R_3, and R_4 ~~and R_6~~ are each independently selected from the group consisting of H, alkyl, alkoxy, halo, amidine, nitro and amino groups;

R_6 is H, alkyl or aryl; and

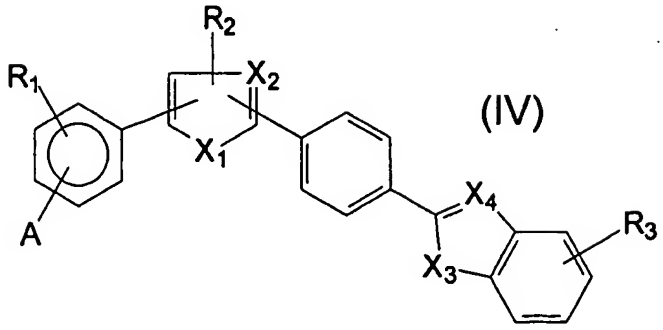
R_7 and R_8 are each independently selected from the group consisting of H and alkyl.

19. (Original) A pharmaceutical composition comprising a compound of Claim 18, in a pharmaceutically acceptable carrier.

20. (Original) The pharmaceutical composition according to Claim 19, wherein the composition is formulated for intravenous administration.

21. (Original) The pharmaceutical composition according to Claim 19, wherein the composition is formulated for oral administration.

22. (Currently Amended) A compound according to Formula IV:



(IV)

wherein:

X_1 is O;

X_2 is CH;

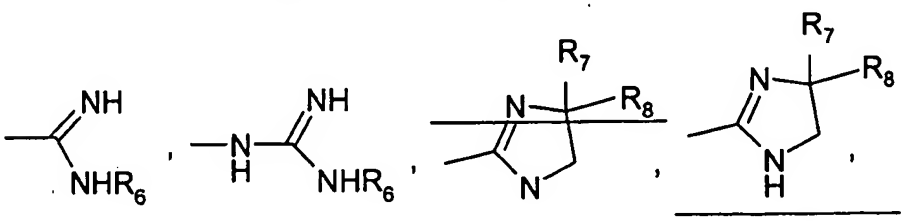
X_3 is NR_9, wherein R_9 is H or alkyl;

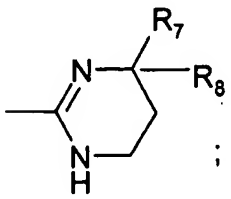
X_4 is N;

~~X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;~~

~~X_2 and X_4 are each independently CH or N;~~

A is ~~selected from the group consisting of H, alkyl, aryl,~~



and 

;

R_1, R_2, and R_3, ~~R_4 and R_5~~ are each independently selected from the group consisting of H, alkyl, alkoxy, halide, alkylhalide, amidine, nitro and amino groups;

R_6 is H, alkyl or aryl; and

R_7 and R_8 are each independently selected from the group consisting of H and alkyl.

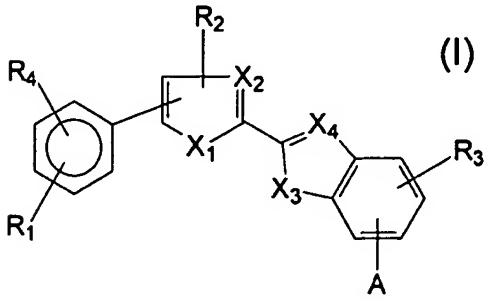
23. (Original) A pharmaceutical composition comprising a compound of Claim 22, in a pharmaceutically acceptable carrier.

24. (Original) The pharmaceutical composition according to Claim 23, wherein the composition is formulated for intravenous administration.

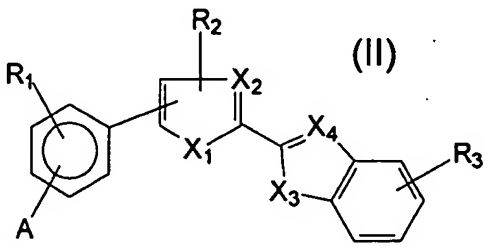
25. (Original) The pharmaceutical composition according to Claim 23, wherein the composition is formulated for oral administration.

26-52. (Canceled)

53. (Withdrawn) A method of treating bovine viral diarrhea virus (BVDV) infection in a subject in need of such treatment, comprising administering to the subject a compound selected from the group consisting of Formula I and Formula II:



(I)



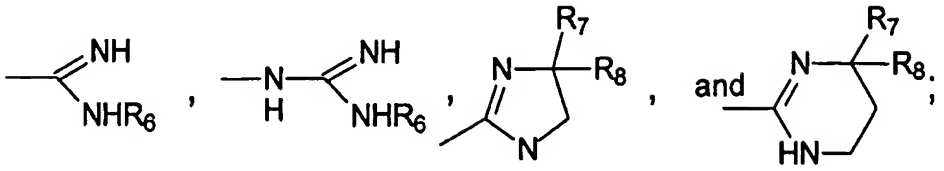
(II)

wherein:

X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;

X_2 and X_4 are each independently CH or N;

A is selected from the group consisting of H, alkyl, aryl,



R_1, R_2, R_3, R_4 and R_5 are each independently selected from the group consisting of H, alkyl, alkoxy, halide, alkylhalide, amidine, nitro and amino groups;

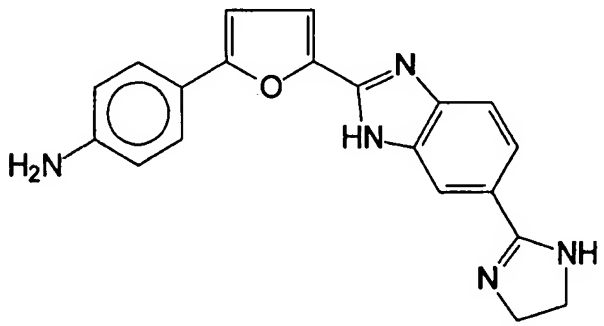
R_6 is H, alkyl or aryl; and

R_7 and R_8 are each independently selected from the group consisting of H and alkyl;

or a pharmaceutically acceptable salt thereof, in an amount sufficient to treat the bovine viral diarrhea virus (BVDV) infection.

54. (Withdrawn) The method according to Claim 53, wherein the compound is a compound of Formula I.

55. (Withdrawn) The method according to Claim 53, wherein the compound is represented by the formula:



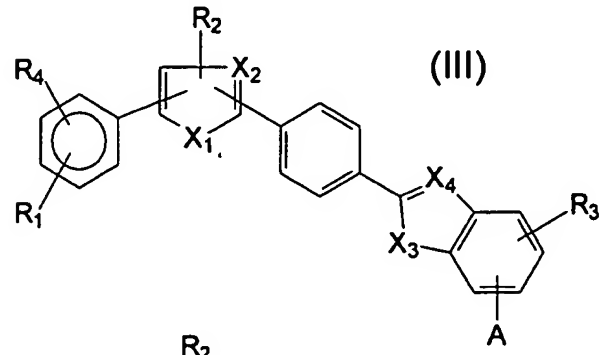
56. (Withdrawn) The method according to Claim 53, wherein the subject is a cow.

57. (Withdrawn) The method according to Claim 53, wherein the subject is an embryo.

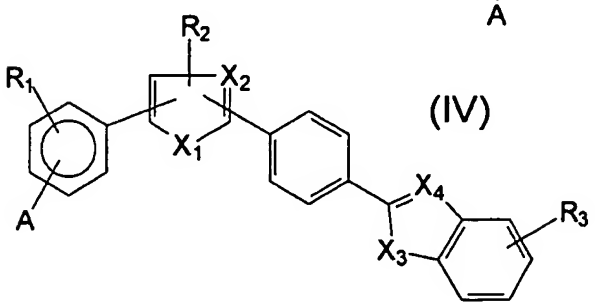
58. (Withdrawn) The method according to Claim 53, wherein the compound is administered intravenously.

59. (Withdrawn) The method according to Claim 53, wherein the compound is administered orally.

60. (Withdrawn) A method of treating bovine viral diarrhea virus (BVDV) infection in a subject in need of such treatment, comprising administering to the subject a compound selected from the group consisting of Formula III and Formula IV:



(III)



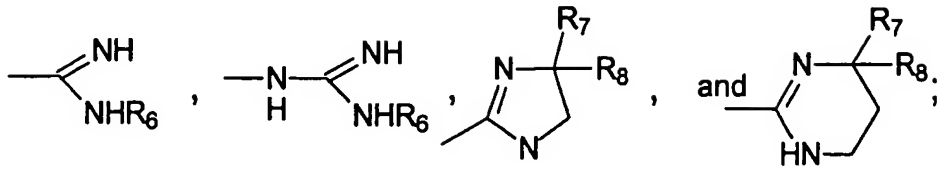
(IV)

wherein:

X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;

X_2 and X_4 are each independently CH or N;

A is selected from the group consisting of H, alkyl, aryl,



R_1, R_2, R_3, R_4 and R_5 are each independently selected from the group consisting of H, alkyl, alkoxy, halide, alkylhalide, amidine, nitro and amino groups;

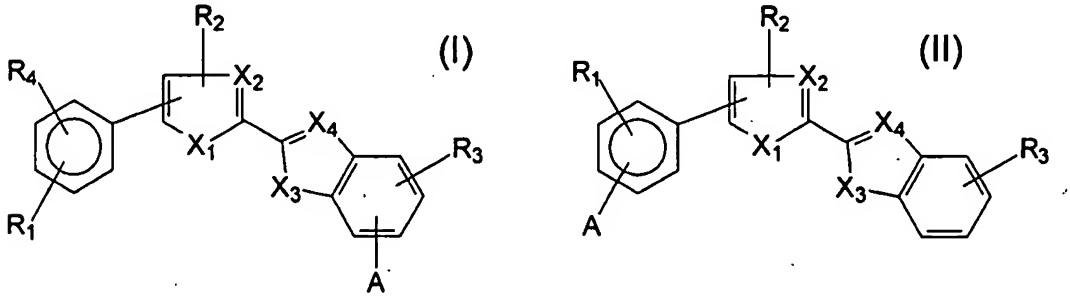
R_6 is H, alkyl or aryl; and

R_7 and R_8 are each independently selected from the group consisting of H and alkyl;

or a pharmaceutically acceptable salt thereof, in an amount sufficient to treat the bovine viral diarrhea virus (BVDV) infection.

61-77. (Canceled)

78. (Withdrawn) A method of treating hepatitis C infection in a subject in need of such treatment, comprising administering to the subject a compound selected from the group consisting of Formula I and Formula II:

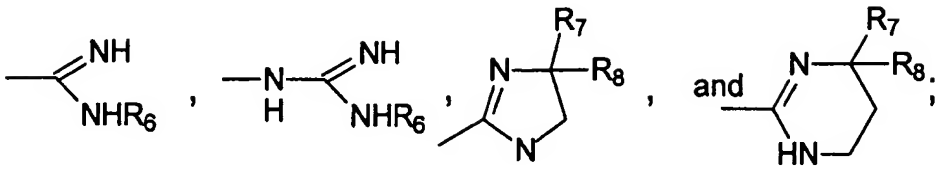


wherein:

X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;

X_2 and X_4 are each independently CH or N;

A is selected from the group consisting of H, alkyl, aryl,



R_1, R_2, R_3, R_4 and R_5 are each independently selected from the group consisting of H, alkyl, alkoxy, halide, alkylhalide, amidine, nitro and amino groups;

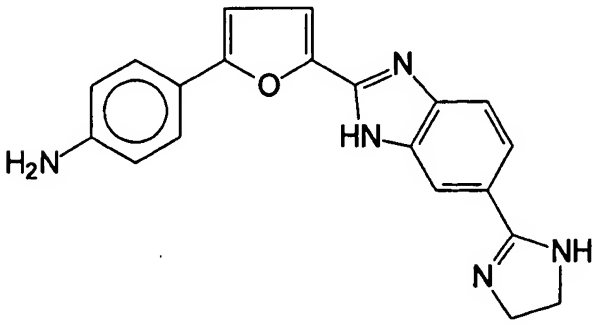
R_6 is H, alkyl or aryl; and

R_7 and R_8 are each independently selected from the group consisting of H and alkyl;

or a pharmaceutically acceptable salt thereof, in an amount sufficient to treat the hepatitis C infection.

79. (Withdrawn) The method according to Claim 78, wherein the compound is a compound of Formula I.

80. (Withdrawn) The method according to Claim 78, wherein the compound is represented by the formula:

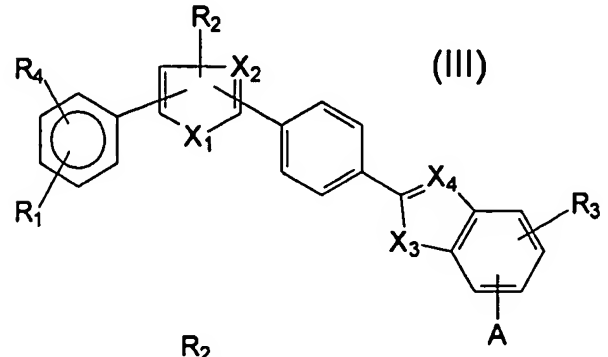


81. (Withdrawn) The method according to Claim 78, wherein the subject is a human.

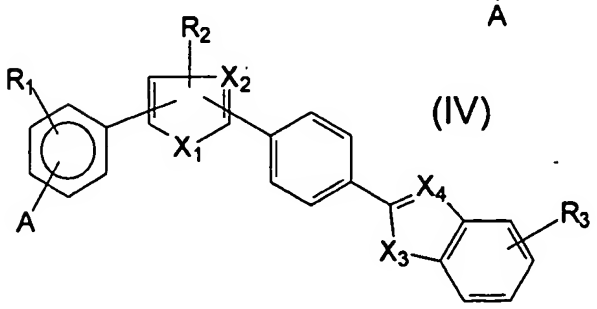
82. (Withdrawn) The method according to Claim 78, wherein the compound is administered intravenously.

83. (Withdrawn) The method according to Claim 78, wherein the compound is administered orally.

84. (Withdrawn) A method of treating hepatitis C infection in a subject in need of such treatment, comprising administering to the subject a compound selected from the group consisting of Formula III and Formula IV:



(III)



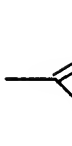
(IV)

wherein:

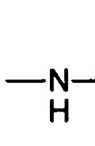
X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;

X_2 and X_4 are each independently CH or N;

A is selected from the group consisting of H, alkyl, aryl,



,



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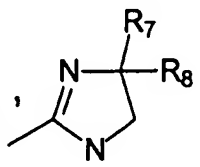
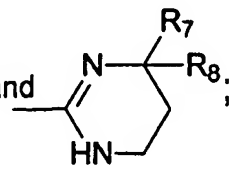


, and



;

R_1, R_2, R_3, R_4 and R_5 are each independently selected from the group consisting of H, alkyl, alkoxy, halide, alkylhalide, amidine, nitro and amino groups;

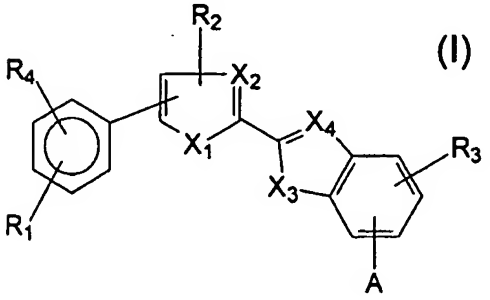
R_6 is H, alkyl or aryl; and

R_7 and R_8 are each independently selected from the group consisting of H and alkyl;

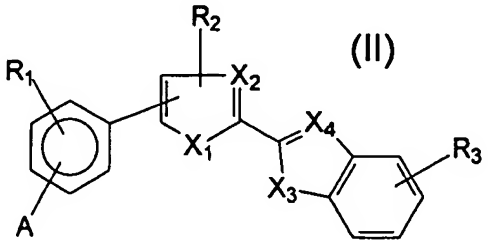
or a pharmaceutically acceptable salt thereof, in an amount sufficient to treat the hepatitis C infection.

85-100. (Canceled)

101. (Withdrawn) A method of treating a member of the *Flaviviridae* family of viruses in a subject in need of such treatment, comprising administering to the subject a compound selected from the group consisting of Formula I and Formula II:



(I)



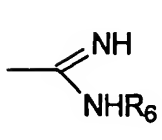
(II)

wherein

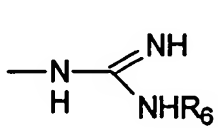
X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;

X_2 and X_4 are each independently CH or N;

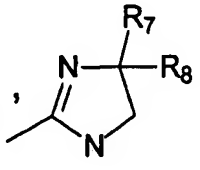
A is selected from the group consisting of H, alkyl, aryl,



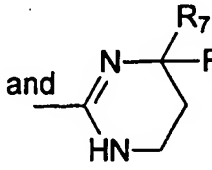
,



,



, and



;

R_1, R_2, R_3, R_4 and R_5 are each independently selected from the group consisting of H, alkyl, alkoxy, halide, alkylhalide, amidine, nitro and amino groups;

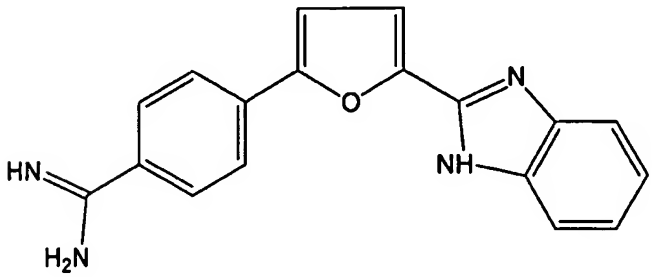
R_6 is H, alkyl or aryl; and

R_7 and R_8 are each independently selected from the group consisting of H and alkyl;

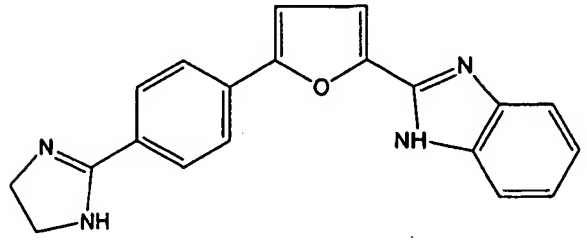
or a pharmaceutically acceptable salt thereof, in an amount sufficient to treat the bovine viral diarrhea virus (BVDV) infection.

102. (Withdrawn) The method according to Claim 101, wherein the compound is a compound of Formula II.

103. (Withdrawn) The method according to Claim 101, wherein the compound is represented by the formula:



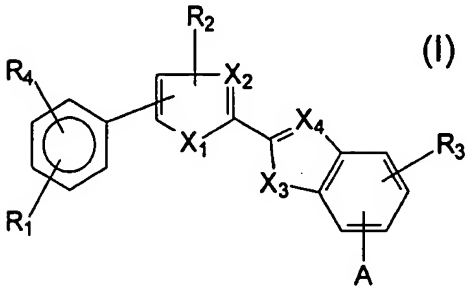
104. (Withdrawn) The method according to Claim 101, wherein the compound is represented by the formula:



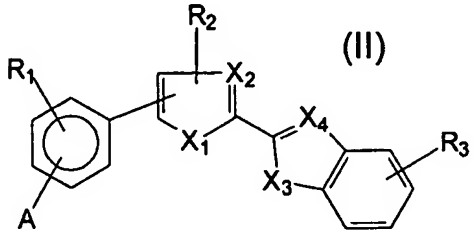
105. (Withdrawn) The method according to Claim 101, wherein the compound is administered intravenously.

106. (Withdrawn) The method according to Claim 101, wherein the compound is administered orally.

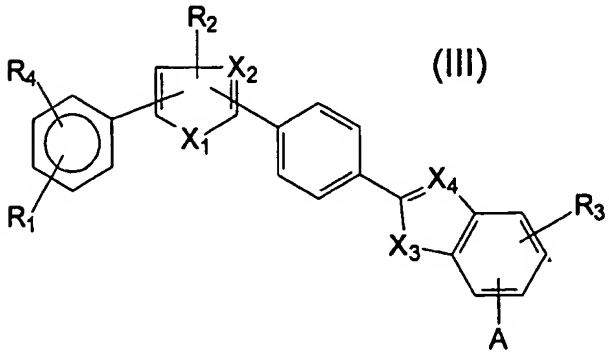
107. (Withdrawn) A method of treating a culture for bovine viral diarrhea virus (BVDV) infection, comprising administering to the culture a compound selected from the group consisting of Formula (I)-Formula (IV):



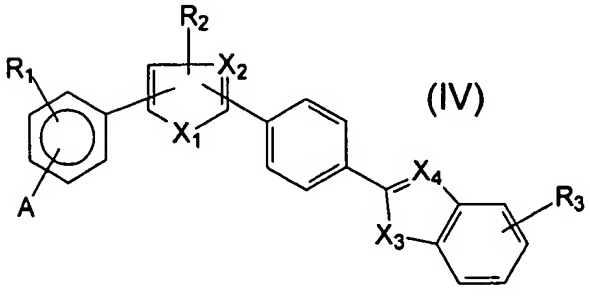
(I)



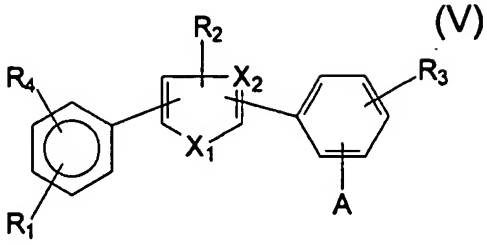
(II)

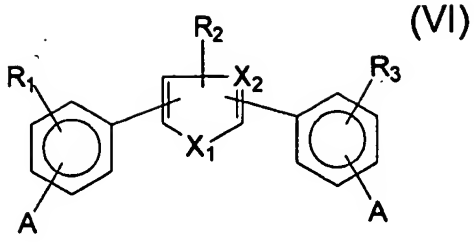


(III)



(IV)


(V)

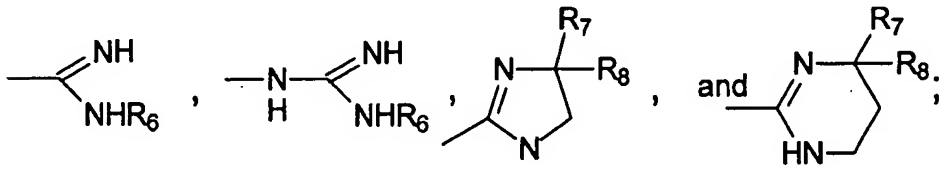

(VI)

wherein:

X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;

X_2 and X_4 are each independently CH or N;

A is selected from the group consisting of H, alkyl, aryl,



R_1, R_2, R_3, R_4 and R_5 are each independently selected from the group consisting of H, alkyl, alkoxy, amidine, halide, alkylhalide, nitro and amino groups;

R_6 is H, alkyl or aryl; and

R_7 and R_8 are each independently selected from the group consisting of H and alkyl; or a pharmaceutically acceptable salt thereof, in an amount sufficient to treat the BVDV infection.

108. (Withdrawn) The method of Claim 107, wherein the culture is selected from one of a cell culture and a tissue culture.

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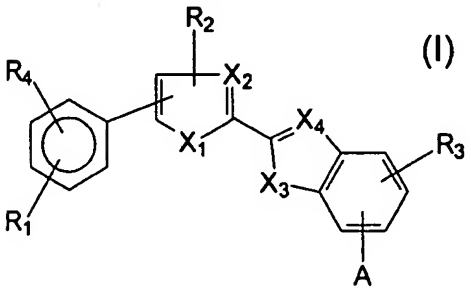
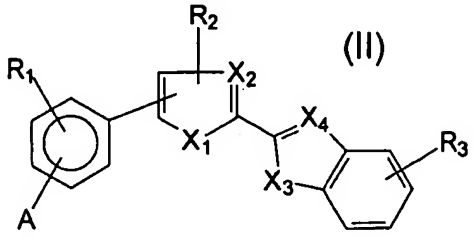
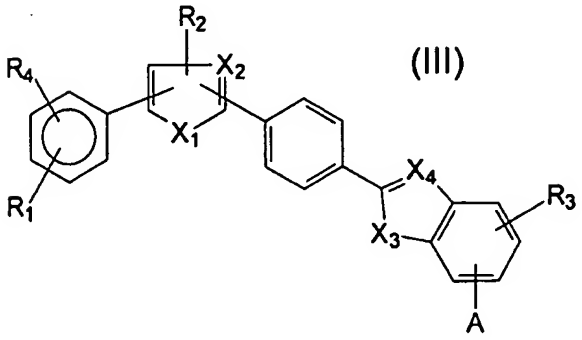
109. (Withdrawn) A method of treating an embryo for bovine viral diarrhea virus (BVDV) infection, comprising administering to the embryo a compound selected from the group consisting of Formula (I)-Formula (IV):



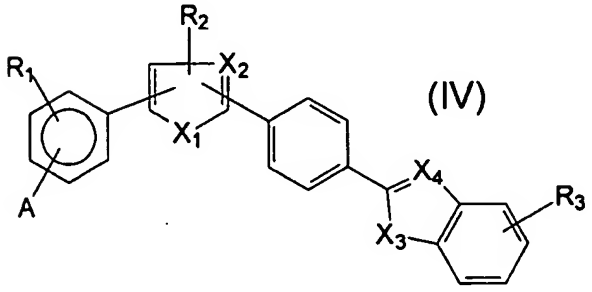
(I)



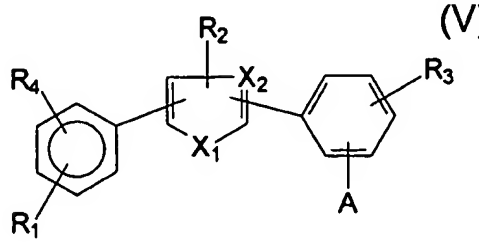
(II)



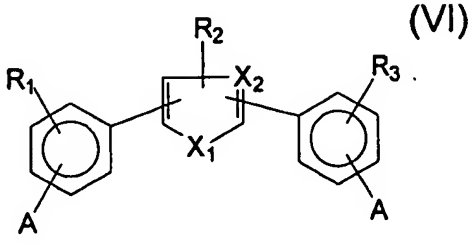
(III)



(IV)



(V)



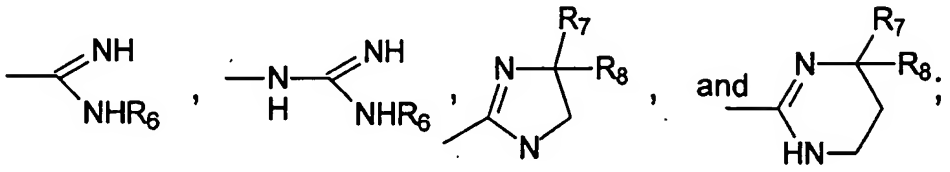
(VI)

wherein:

X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;

X_2 and X_4 are each independently CH or N;

A is selected from the group consisting of H, alkyl, aryl,



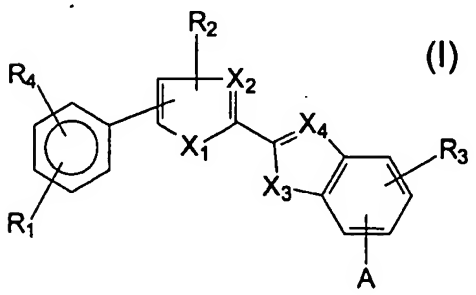
R_1, R_2, R_3, R_4 and R_5-are each independently selected from the group consisting of H, alkyl, alkoxy, amidine, halide, alkylhalide, nitro and amino groups;

R_6 is H, alkyl or aryl; and

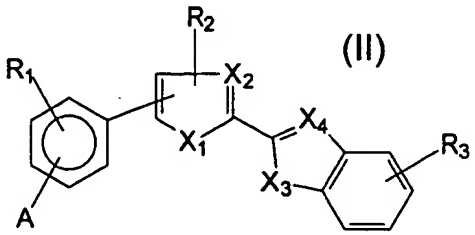
R_7 and R_8 are each independently selected from the group consisting of H and alkyl; or a pharmaceutically acceptable salt thereof, in an amount sufficient to treat the BVDV infection.

110. (Withdrawn) The method of Claim 109, wherein the embryo comprises an *in vitro*-produced embryo.

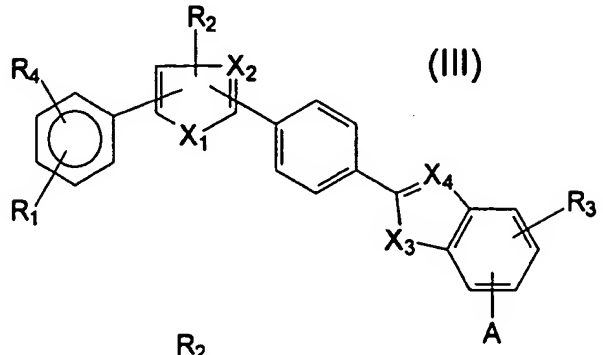
111. (Withdrawn) A method of treating bovine viral diarrhea virus (BVDV) in a culture medium surrounding an *in vitro*-produced embryo, comprising administering to the culture medium a compound selected from the group consisting of Formula (I)-Formula (IV):

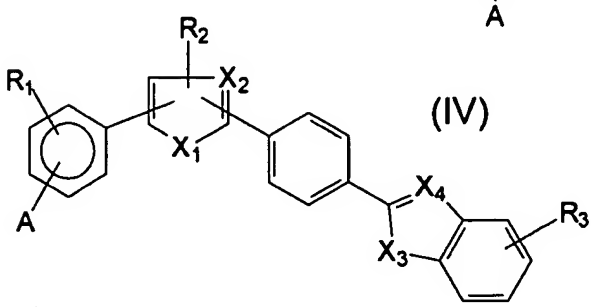


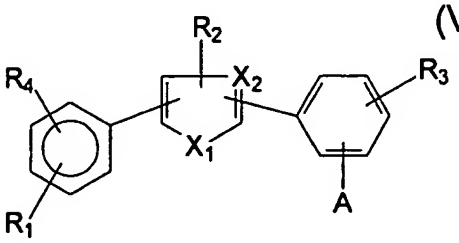
(I)

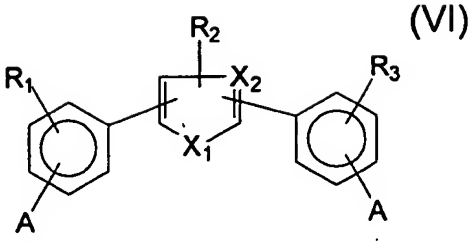


(II)


(III)


(IV)


(V)

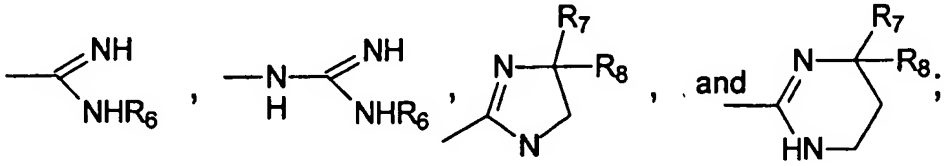

(VI)

wherein:

X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;

X_2 and X_4 are each independently CH or N;

A is selected from the group consisting of H, alkyl, aryl,



R_1, R_2, R_3, R_4 and R_5 are each independently selected from the group consisting of H, alkyl, alkoxy, amidine, halide, alkylhalide, nitro and amino groups;

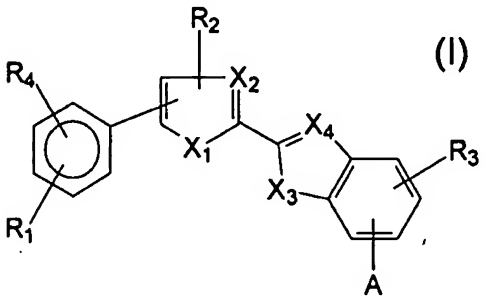
R_6 is H, alkyl or aryl; and

R_7 and R_8 are each independently selected from the group consisting of H and alkyl; or a pharmaceutically acceptable salt thereof, in an amount sufficient to treat the BVDV.

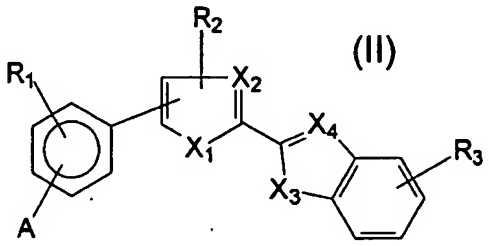
112. (Withdrawn) A method of preparing a biological specimen or medium for use in an *in vitro* fertilization procedure, the method comprising:

(a) providing the biological specimen or medium; and

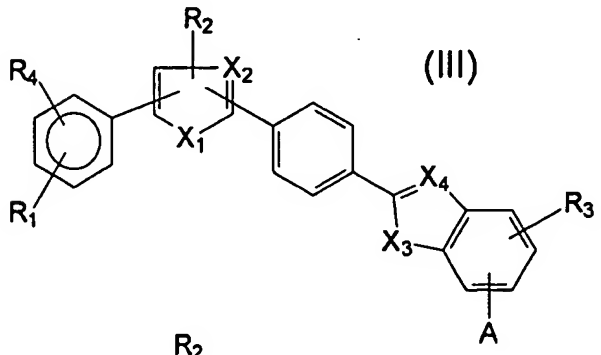
(b) administering to the biological specimen or medium a compound selected from the group consisting of Formula (I)-Formula (IV):



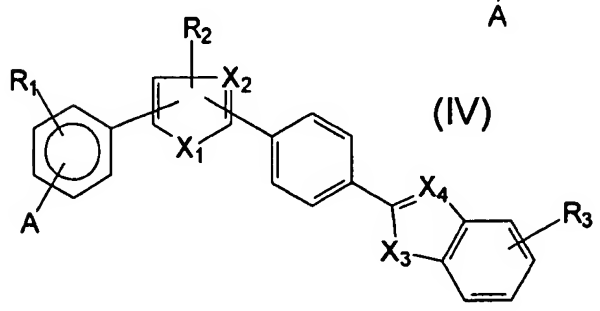
(I)



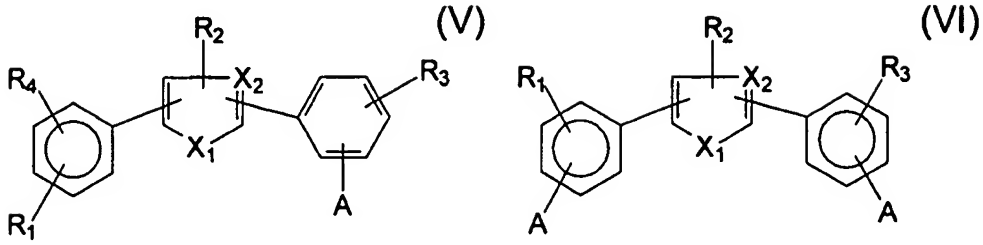
(II)



(III)



(IV)

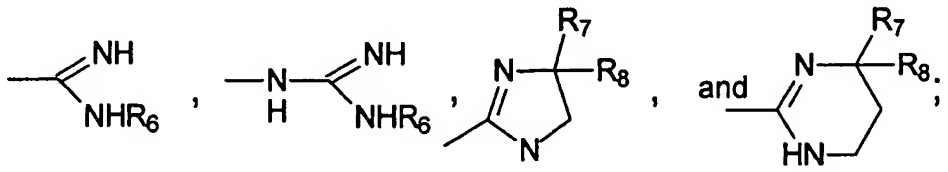


wherein:

X_1 and X_3 are each independently selected from the group consisting of O, S and NR_9, wherein R_9 is H or alkyl;

X_2 and X_4 are each independently CH or N;

A is selected from the group consisting of H, alkyl, aryl,



R_1, R_2, R_3, R_4 and R_5 are each independently selected from the group consisting of H, alkyl, alkoxy, amidine, halide, alkylhalide, nitro and amino groups;

R_6 is H, alkyl or aryl; and

R_7 and R_8 are each independently selected from the group consisting of H and alkyl; or a pharmaceutically acceptable salt thereof, in an amount sufficient to treat the biological specimen or medium for a BVDV infection.

113. (Withdrawn) The method of Claim 112, wherein the biological specimen or medium comprises a gamete, a serum, a somatic cell, an oocyte, a cumulus oocyte complex (COC), an embryo, a culture medium surrounding an embryo, and combinations thereof.